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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,738

01/16/2007

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06/09/2009

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EXAMINER

MRUK, GEOFFREY S

ART UNIT

PAPER NUMBER

2853

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,738	EGUCHI ET AL.	
	Examiner	Art Unit	
	Geoffrey Mruk	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 April 2009 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitani et al. (US 5,697,144).

With respect to claim 1, Mitani discloses a liquid discharge device having a liquid discharge head in which a plurality of liquid discharge portions are arrayed on a substrate, each of said liquid discharge portions comprising:

- a liquid chamber (Fig. 1, element 9) for storing a liquid to be discharged,

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- ejection force supplying means (Fig. 1, element 3) disposed within said liquid chamber, for providing the liquid within said liquid chamber with ejection force, and
- a nozzle for discharging the liquid (Fig. 1, element 12) stored in said liquid chamber by actions of said ejection force supplying means,
- said liquid discharge device further comprising:
- individual channels (Fig. 1, element 10), separated by barrier walls (Fig. 1, element 8), provided for each of said liquid discharge portions so as to communicate with said respective liquid chamber (Fig. 1, element 9) and supply liquid to said respective liquid chamber; and
- a contiguous common channel (Fig. 1, element 16) disposed across each of said plurality of individual channels so as to communicate with each of said plurality of individual channels and for supplying liquid to said plurality of individual channels (Column 6, lines 63-66);
- said contiguous common channel being comprised of
- a first common channel portion (Fig. 1, element 15) provided on a liquid supply source side, and
- a second common channel portion (Fig. 1, element 14) provided between said first common channel portion and said individual channels, and having liquid channel resistance greater than that of said first common channel portion (Column 1, lines 54-56; Column 5, lines 62-64) and further wherein the second common channel portion is in direct fluid communication (Column

5, lines 62-64) with the individual channels, and the second common channel receives ink directly from (Column 6, lines 63-66) the first common channel portion.

The examiner notes the cross sectional area of the first common channel portion (Fig. 1, element 15) is greater than the cross sectional area of the second common channel portion (Fig. 1, element 14). The lengths of elements 14 and 15 can vary within the disclosed ranges. Therefore, Mitani meets the claimed limitations.

With respect to claim 2, Mitani discloses the channel cross-sectional area of said second common channel portion (Fig. 1, element 14) perpendicular to a supply direction of said liquid through said second common channel portion is formed smaller than the channel cross-sectional area of said first common channel portion (Fig. 1, element 15) perpendicular to a supply direction of said liquid through said first common channel portion, thereby setting the channel resistance of said second common channel portion greater than the channel resistance of said first common channel portion (Column 1, lines 54-56; Column 5, line 62 – Column 6, line 3).

With respect to claim 3, Mitani discloses at least a part of said second common channel portion (Fig. 1, element 14) is comprised of at least a part of said liquid discharge head (Fig. 1, element 1).

With respect to claim 4, Mitani discloses said second common channel portion (Fig. 1, element 14) is formed such that the channel resistance as to the movement direction of liquid (Fig. 1, element 16 to Fig. 1, element 12) to the plurality of individual

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channels (Fig. 1, element 10) with which said second common channel portion communicates is substantially constant (Column 8, lines 10-14).

With respect to claim 5, Mitani discloses a plurality of said liquid discharge heads (Fig. 5) are provided, and said second common channel portion (Fig. 4a, element 9) of said plurality of said liquid discharge heads (Fig. 2b, B-B cross section) is formed so as to have substantially constant channel resistance (Column 8, lines 10-14).

With respect to claim 6, Mitani discloses said second common channel portion (Fig. 1, element 14) is formed so as to have generally the same channel flow direction as said individual channels (Fig. 1, element 10, i.e. interface between elements 10 and 14).

With respect to claim 7, Mitani discloses at least a part of a wall (Fig. 1, element 1) comprising said second common portion (Fig. 1, element 14) channel is a face of said substrate (Fig. 1, element 8) where said individual channels (Fig. 1, element 10) are provided.

With respect to claim 8, Mitani discloses at least a part of a wall (Fig. 1, element 1) comprising said second common channel portion (Fig. 1, element 14) is said substrate (Fig. 1, element 8) where said individual channels are provided (Fig. 1, element 10), and further is formed of a same material (Column 4, lines 49-57) as the material comprising said liquid discharge portions or said individual channels (Fig. 1, element 10).

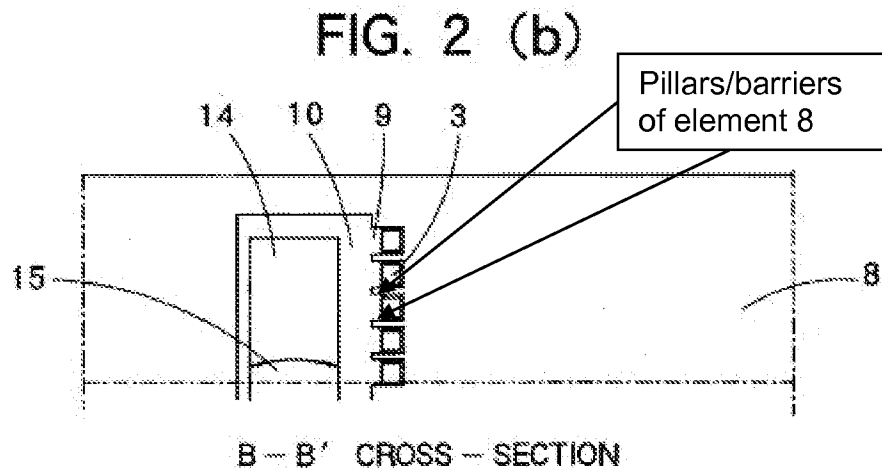
With respect to claim 9, Mitani discloses said substrate (Fig. 1, element 1) has a face perpendicular to or generally perpendicular to a face where said individual

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channels (Fig. 1, element 10) are provided, and at least a part of a wall (Fig. 1, element 1) comprising said second common channel portion (Fig. 1, element 14) is said perpendicular or generally perpendicular face as one wall face.

With respect to claim 10, Mitani discloses at least a part of a wall (Fig. 1, element 1) comprising said second common channel portion (Fig. 1, element 14) is a face of said substrate (Fig. 1, element 1) where said individual channels are provided (Fig. 1, element 10), and wherein said substrate has a face perpendicular to or generally perpendicular to a face where said individual channels are provided (Fig. 1, element 10), with at least a different part of a wall (Fig. 1, element 1) comprising said second common channel portion (Fig. 1, element 14) is said perpendicular or generally perpendicular face.

With respect to claim 11, Mitani discloses pillars (Fig. 2b below) are formed in said second common channel portion (Fig. 1, element 10, i.e. interface between elements 10 and 14).



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With respect to claim 12, Mitani discloses a flow direction of liquid in the entire length of the second common channel portion (Fig. 1, element 14) is perpendicular to a flow direction of liquid in said individual channels (Fig. 1, element 10, i.e. interface between elements 10 and 14).

With respect to claim 13, Mitani discloses a flow direction of liquid in the entire length of the second common channel portion (Fig. 1, element 14) is perpendicular to a flow direction of liquid in said individual channels (Fig. 1, element 10).

With respect to claim 14, Mitani discloses a flow direction of liquid in a first part of the second common channel portion (Fig. 1, element 14) is perpendicular to a flow direction of liquid in said individual channels (Fig. 1, element 10), and a flow direction of liquid in a second part of the second common channel portion is parallel to a flow direction of liquid in said individual channels (Fig. 1, element 10, i.e. interface between elements 10 and 14).

With respect to claim 15, Mitani discloses a flow direction of liquid in a first part of the second common channel portion (Fig. 1, element 14) is perpendicular to a flow direction of liquid in said individual channels (Fig. 1, element 10), and a flow direction of liquid in a second part of the second common channel portion is parallel to a flow direction of liquid in said individual channels (Fig. 1, element 10, i.e. interface between elements 10 and 14).

With respect to claim 16, Mitani discloses pillars (Fig. 2b above) are formed in said second part of said second common channel (Fig. 1, element 10, i.e. interface

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between elements 10 and 14) portion but not in said fast part of said second common channel portion (Fig. 1, element 14, i.e. bottom portion).

With respect to claim 17, Mitani discloses pillars (Fig. 2b above) are formed in said second part of said second common channel portion (Fig. 1, element 10, i.e. interface between elements 10 and 14) but not in said first part of said second common channel portion (Fig. 4a, element 14, i.e. bottom portion).

With respect to claim 18, Mitani discloses the second common channel portion (Fig. 1, element 14) is comprised of a portion that is located on the same substrate (Fig. 1, element 8) on which the barrier walls (Fig. 2b, element 8) are formed for the individual channels (Fig. 2b, element 10) and a height of the individual channels is greater than a height of the second common channel portion (Fig. 1, thickness of element 8).

Response to Arguments

Applicant's arguments filed 20 April 2009 have been fully considered but they are not persuasive. The applicant argues "Applicants respectfully submit that in light of these clarifications, the Examiner's previous rejections do not apply because the structures as specified by the Examiner clearly do not correspond with the structures now specified in the claims of the instant application." However, the examiner has now modified the rejection to clarify the elements claimed by applicant and the elements disclosed by Mitani. Therefore, Mitani meets the claimed limitations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is (571)272-2810. The examiner can normally be reached on Monday-Friday 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. M./
Examiner, Art Unit 2853
6/4/2009

/Julian D. Huffman/
Primary Examiner, Art Unit 2853